PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Hiroshi KOJIMA

Group Art Unit: 1786

Application No.: 10/519,796

Examiner: M. MATZEK

Filed: December 29, 2004

Docket No.: 123745

For: ELECTROMAGNETIC SHIELDING SHEET AND METHOD OF FABRICATING THE SAME

REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following remarks are directed to the new points of argument raised in the Examiner's Answer dated May 12, 2010.

Claims 1, 3, 4, and 6-11 are pending. Claims 1, 3, 4, 6-8 and 11 are on appeal. Claims 9 and 10 have been withdrawn from consideration.

I. Argument

The Examiner rejects claims 1, 4, 6-8 and 11 as having been obvious under 35 U.S.C. §103(a) over EP 0 998 182 A2 to Ueda et al. ("Ueda") in view of JP 62-107039 to Miyake ("Miyake").

The Examiner also rejects claim 3 as having been obvious under 35 U.S.C. §103(a) over Ueda in view of Miyake and further in view of U.S. Patent No. 5,158,657 to Kadokura et al. ("Kadokura").

For all of the reasons discussed below and contained in Appellant's February 11, 2010 Brief on Appeal, it is respectfully submitted that the rejections are in error and that claims 1, 3, 4, 6-8 and 11 are in condition for allowance.

A. Ueda And Miyake Would Not Have Rendered Obvious Each And Every Feature Of The Claims

The combination of applied references does not teach or suggest, "a blackened layer formed on one of the surfaces of the metal layer; and a density-intensifying layer formed on the blackened layer for intensifying black density of the blackened layer." (Emphasis added). The Examiner acknowledges that Miyake is only relied on as disclosing a Cu-Co alloy and that Kadokura is only relied upon to disclose a particle size for the Cu-Co layer. *See* Examiner's Answer, page 10, paragraph 6 and page 13, paragraph 13. Thus, Ueda must disclose or have rendered obvious the above-quoted feature of claim 1.

The Examiner asserts that Ueda discloses that its outermost metallic layer should be black to suppress the reflection of visible light. Examiner's Answer, page 7, paragraph 1. The Examiner also asserts that Ueda discloses electroplating a thin metallic leveling layer on top of a preceding metallic layer to minimize variations in the thickness of the preceding metallic layer. *Id.* at pages 7-8, paragraph 1. The "Examiner takes the position that the metallic layer serves as the claimed blackened layer, because the final plated leveling layer serves only to minimize surface irregularities in said metallic layer, not provide a blackened surface to suppress visible light reflection ... This last chromate-plated thin leveling layer would also necessarily be blackened because it is located on the exterior of the shield plate ..., but could not serve as the lone blackened layer as it could not reasonably be thick enough to suppress reflection on its own when its main function is to minimize surface irregularities." *Id.* (emphasis added). The Examiner repeatedly makes assertions that the "leveling layer serves as the claimed density-intensifying layer formed on the blackened uppermost metallic

layer of Ueda." *Id.* at page 9, paragraph 3, *see also* pages 9-10, paragraph 4 and page 10, paragraph 5. Appellant respectfully asserts that the above reading of Ueda stretches the reference beyond what it can reasonably be asserted to disclose.

First, as outlined above, the Examiner focuses his rejection on the features and attributes of Ueda's "leveling layer."[1] However, this layer is only disclosed in one, ambiguous sentence of Ueda, and the Examiner manipulates this sentence beyond its reasonable interpretation to allegedly disclose the density-intensifying layer of claim 1.

Ueda discloses, "It is possible to plating [sic] using both electroplating and electroless plating. Especially, it is an effective method for making a variation in thickness of metallic layer small that thin metallic layer [sic] is further plated using electroplating after covering thin metallic layer on the geometric pattern using electroless plating." Ueda, paragraph [0034]. This is the only disclosure of Ueda's alleged "leveling layer." Nowhere does Ueda disclose the thickness of the "leveling layer" or that it alone can or cannot function as a blackened layer to suppress reflections. Any assertion that the "leveling layer" cannot itself be the lone blackened layer is the Examiner's unsubstantiated interpretation and not based on the disclosure of Ueda.

Further, the Examiner on one hand asserts that the "leveling layer" of Ueda is not thick enough to be the lone blackened layer, but on the other hand the Examiner asserts that the "leveling layer" can act as a protective layer. *Compare* Examiner's Answer, page 8, paragraph 1 to Examiner's Answer, page 9, paragraph 3. Appellant respectfully asserts that these two statements are incongruous (specifically, how can a layer be too thin to reflect light and still provide protection for its underlying layer) and emphasize that the Examiner is

[1] "Leveling layer" is terminology used by the Examiner and is not found in Ueda. Appellant uses this term to refer to a thin electroplated metallic layer applied over a thin electroless plated metallic layer, as disclosed in paragraph [0034] of Ueda.

misconstruing the "leveling layer" of Ueda so that the features of Appellant's claims read on its disclosure.

Second, the Examiner improperly distinguishes between the "leveling layer" and the "uppermost metallic layer" of Ueda. For example, the Examiner asserts that the "leveling layer serves as the claimed density-intensifying layer formed on the blackened uppermost metallic layer of Ueda." Examiner's Answer, page 9, paragraph 3. The Examiner also asserts that both the "uppermost metallic layer" and the "leveling layer" would be blackened. *Id.* at page 8, paragraph 1. This is not disclosed in Ueda and would not reasonably flow from its disclosure.

Ueda repeatedly discloses that its "uppermost layer" is blackened. Nowhere does Ueda disclose that two layers are blackened or that its "uppermost metallic layer" and a "leveling layer" are blackened, as asserted by the Examiner. As stated in paragraph [0034] of Ueda, its "leveling layer" is metallic and is applied on top of a thin metallic layer to minimize variations in the thickness of the metallic layer. As discussed in detail in Appellant's Brief on Appeal, the next three sentences of Ueda disclose how its uppermost blackened layer is formed. These sentences recite:

> When forming the uppermost layer as a black colored layer, black nickel plating, chromate plating, or black ternary alloy plating using tin, nickel and copper, or black ternary alloy plating using tin, nickel and molybdenum, should be applied for the formation of the black colored layer. It is possible to blacking a surface of a metallic layer by sulfuration treatment or oxidation treatment. It is possible to carrying out such a treatment by well-known methods.

Ueda, paragraph [0034] (emphasis added). Thus, Ueda discloses two alternative ways to make its uppermost layer black: 1) forming a blackened layer using black nickel plating, chromate plating, or black ternary alloy plating using tin, nickel and copper, or black ternary alloy plating using tin, nickel and molybdenum; and 2) blackening the surface of an already formed metallic layer using sulfuration or oxidation treatment.

Accordingly, Ueda discloses that if a thin metallic layer is applied to the conductive paste using electroless plating and then a thin metallic "leveling layer" is applied to the first thin metallic layer using electroplating, the leveling layer would become the uppermost layer. In this situation, the uppermost blackened layer may be formed in one of three ways: 1) a third, blackened layer may be applied on the "leveling layer" using black nickel plating, chromate plating, or black ternary alloy plating using tin, nickel and copper, or black ternary alloy plating using tin, nickel and molybdenum; 2) the "leveling layer" may be blackened using sulfuration or oxidation treatment; or 3) the "leveling layer" could have been formed on the first thin metallic layer as a blackened layer using black nickel plating, chromate plating, or black ternary alloy plating using tin, nickel and copper, or black ternary alloy plating using tin, nickel and molybdenum.

All of three of the above methods would include an uppermost blackened layer without requiring another blackened layer beneath the uppermost blackened layer, as asserted by the Examiner but not disclosed anywhere in Ueda. The above methods are a more reasonable interpretation of Ueda than the Examiner's extenuated interpretation that two layers are to be blackened based on the Examiner's unsubstantiated belief that the "leveling layer" is too thin to act alone as the blackened layer. However, neither of the three above methods discloses a density-intensifying layer formed on a blackened layer, as recited in claim 1.

Further, as stated in Appellant's Brief on Appeal, the examples of Ueda support Appellant's interpretation of the reference. Examples 3 and 5-8 all disclose a separate black nickel-plating step conducted after a copper-plating step. The thickness of the black nickel-plated layer is identical to the thickness of the copper layer, and no layers are added on top of the black nickel-plated layer, so that the uppermost layer is blackened. None of examples 3 and 5-8 disclose two blackened layers or that any layer other than the uppermost

layer is blackened. Examples 1, 2 and 4 do not disclose any type of blackening. Thus, all of the examples that disclose a black layer correspond to Appellant's interpretation of Ueda, that only the uppermost layer is blackened, and refute the extenuated interpretation of the Examiner that any layer, let alone a density-intensifying layer as recited in claim 1, is formed on Ueda's blackened layer.

Accordingly, the applied references would not have rendered obvious each and every feature of claim 1.

B. <u>It Would Not Have Been Obvious To Have Combined Ueda And Miyake</u>

The Examiner unambiguously states that it would have been obvious to replace the copper of Ueda with the Cu-Co alloy of Miyake, because Miyake allegedly discloses that its Cu-Co alloy better resists environmental conditions. Examiner's Answer, page 8, paragraph 2. The Examiner also states, "The blackening processes of Ueda are extremely effective on, and specifically selected for, the plating processes used to add either the Cu or Cu-Co alloy layer to Ueda." Examiner's Answer, page 11, paragraph 8. Appellant disagrees with the Examiner's determination of obviousness.

Regarding the Examiner's latter statement, Appellant asserts that it is unsubstantiated and based on the Examiner's own determinations. Nowhere does Ueda or Miyake disclose that blackening processes are "extremely effective on, and specifically selected for" Cu-Co alloys. Miyake is silent as to blackening processes. Further, as stated above and in Appellant's Brief on Appeal, paragraph [0034] of Ueda discloses its blackening processes. This paragraph discloses specific processes and only the ternary alloy plating process using tin, nickel and copper even uses copper. Thus, Ueda does not disclose that its blackening processes "are extremely effective on, and specifically selected for" a Cu-Co alloy.

Ueda discloses that its metallic layer may be copper and separately discloses that the metallic layer may be blackened using sulfuration or oxidation treatments. *See* Ueda,

paragraph [0034]. However, the Examiner states that the Cu-Co alloy of Miyake is resistant against environmental conditions (i.e., salt water). *See* Examiner's Answer, page 8, paragraph 2. It is asserted that at least oxidation may result from environmental conditions and, thus, one of ordinary skill in the art would not have expected at least this blackening process to be effective with a Cu-Co alloy. The Examiner does not explain why one blackening process (oxidation treatment) of Ueda would not be expected to be successful on Cu-Co alloys and the others are "extremely effective on, and specifically selected for" Cu-Co alloys. Further, if the Cu-Co alloy is only resistant to specific environmental conditions, such as salt water, and not others, such as oxidation, then the Cu-Co alloy is so unpredictable that there is no reason for one of ordinary skill in the art to have known that any specific blackening process would have been successful on the Cu-Co alloy without specific disclosure to that effect.

Also, as asserted in Appellant's Brief on Appeal, Miyake merely discloses a Pb-Cu-Co alloy that may be used in an electromagnetic wave material, and that if specific amounts of Pb, Cu and Co are used, the alloy results in an electromagnetic wave material with improved conductivity and corrosion resistance when compared to tough pitch copper, deoxidized phosphoric copper and oxygen free copper. In general, the conductivity of a metal will vary according to the response of the free electrons within the metal to an electromagnetic wave. Accordingly, when the conductivity of a metal is high, its reflectivity to light (electromagnetic wave) is high and its blackness is low (metal gloss is high). However, when the conductivity of a metal is low, the response of the free electrons within the metal to the electromagnetic wave is low, which means that its reflectivity to the light (electromagnetic wave) is low and its blackness is high. Therefore, the Pb-Cu-Co alloy of Miyake cannot be both high in conductivity and be blackened, and, because Miyake is directed to a layer with improved conductivity, its Pb-Cu-Co layer should not be blackened. Accordingly, Miyake does not

disclose, or provide any reason or rationale for one of ordinary skill in the art to have been aware, that its Cu-Co alloy can or should be blackened.

Accordingly, it would not have been obvious to one of ordinary skill in the art to have combined Ueda and Miyake.

II. Conclusion

For all of the reasons discussed above and contained in Appellant's February 11, 2010 Brief on Appeal, it is respectfully submitted that the rejections are in error and that claims 1, 3, 4, 6-8 and 11 are in condition for allowance. Accordingly, Appellant respectfully requests this Honorable Board to reverse the rejections of claims 1, 3, 4, 6-8 and 11.

Respectfully submitted,

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JAO:NAB/hs

Attachment:
Request for Oral Hearing

Date: June 25, 2010

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